



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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NOTE: Date & initial all entries

**Work Order ID 61854**

Page 2

Wednesday, September 08, 2010 9:16:46 AM

Item ID: D212-664-101TRN

Accept



Setup Start



Revision ID:

Item Name: Crosstube Turning Detail

Stop



Start Date: 9/8/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/24/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Quality Control

*Am 10-09-13 Q*

140

QC8- Inspect parts - second check

0.00



QC

Quality Control

*Siology**(Q)*

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Hand Finishing Crosstubes

0.00

*DP**10-9-14*

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Accept



Setup Start

**Revision ID:****Item Name:** Crosstube Turning Detail

Stop

**Start Date:** 9/8/2010 **Start Qty:** 1.00**Cust Item ID:****Required Date:** 9/24/2010 **Req'd Qty:** 1.00**Customer:****Reference:****Approvals:** Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

**Sequence ID/  
Work Center ID**

160



QC

Quality Control

**Operation  
Description**

QC3- Inspect Part Finish

**Set Up/  
Run Hours**

0.00

Tool ID

Tool #

**Plan  
Code****Accept  
Qty****Reject  
Qty****Reject  
Number****Insp.  
Stamp**

170



Packaging

Packaging

0.00

0.00

Packaging

Packaging

Memo

Identify and Stock in kanban rack  
Location: *x tubes*
ix *DR 10-09-14*

180



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

0.00

*DP 10-9-14*
*10/09/15 AF*
*MF  
10-9-15*

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# Picklist Print

Wednesday, September 08, 2010 9:16:50 AM

Page 1

Work Order ID: 61854



Parent Item: D212-664-101TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 9/8/2010

Required Date: 9/24/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec  
IPP Rev B 08.04.02 removed Polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6005-128		Manufactured		No		120	Each	43.0000	1	1			

Crosstube Material



Location	Loc Qty	Loc Code
LG	43	
53593	9	
57911	34	

Am 10-08-23 ②

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DART AEROSPACE LTD	Work Order:	C1854
Description: Crosstube Assembly (205/212/412 High Fwd)	Part Number:	D212-664-141
Inspection Dwg: D212-664-141 Rev: D		Page 1 of 1

### FIRST ARTICLE INSPECTION CHECKLIST

First Article     Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200	/	Vern AM-04	
	R0.063	+/-0.010	R0.063	/	R-L7	
	2.740	+0.005/-0.000	2.740	/	AM-04	
	5.097	+/-0.030	5.097	/	"	
	2.304	+0.005/-0.000	2.309	/	"	
	2.340	+0.005/-0.000	2.345	/	"	
	2.398	+0.005/-0.000	2.403	/	"	
	2.448	+0.005/-0.000	2.453	/	"	
	2.498	+0.005/-0.000	2.503	/	"	
	2.549	+0.005/-0.000	2.554	/	"	
	2.599	+0.005/-0.000	2.604	/	"	
	2.671	+0.005/-0.000	2.676	/	"	
	2.701	+0.005/-0.000	2.706	/	"	
SIDE B	0.200	+/-0.010	0.200	/	AM-04	
	R0.063	+/-0.010	R0.063	/	VPPA Amend R-L7	
	2.740	+0.005/-0.000	2.740	/	AM-04	
	5.097	+/-0.030	5.097	/	"	
	2.304	+0.005/-0.000	2.309	/	"	
	2.340	+0.005/-0.000	2.345	/	"	
	2.398	+0.005/-0.000	2.403	/	"	
	2.448	+0.005/-0.000	2.453	/	"	
	2.498	+0.005/-0.000	2.503	/	"	
	2.549	+0.005/-0.000	2.554	/	"	
	2.599	+0.005/-0.000	2.604	/	"	
	2.671	+0.005/-0.000	2.676	/	"	
	2.701	+0.005/-0.000	2.706	/	"	
	126.514	+/-0.020	126.514	/	TGRO mes. AM-01	

Measured by:	0-M	Audited by:	S	Prototype Approval:	N/A
Date:	10.09.18	Date:	10/01/14	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
C	07.05.28	Dwg Rev updated	KJ/JLM	
D	10.02.02	Dimension 126.514 was 126.51	KJ	M

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8 7 6 5 4 3 2 1



Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

**GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6005-128  
FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF  
USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)  
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. *01854*  
*BD10-9-08*

RELEASED  
2009-10-29

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	PP	DRAWING NO.	REV. D
MFG. APPR.	DA	D212-664-141	SHEET 1 OF 4
APPROVED	NP	TITLE	SCALE
DE APPR.	F	XTUBE ASS'Y (205/212/412 HI FWD)	NTS
DATE	09.09.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1

A

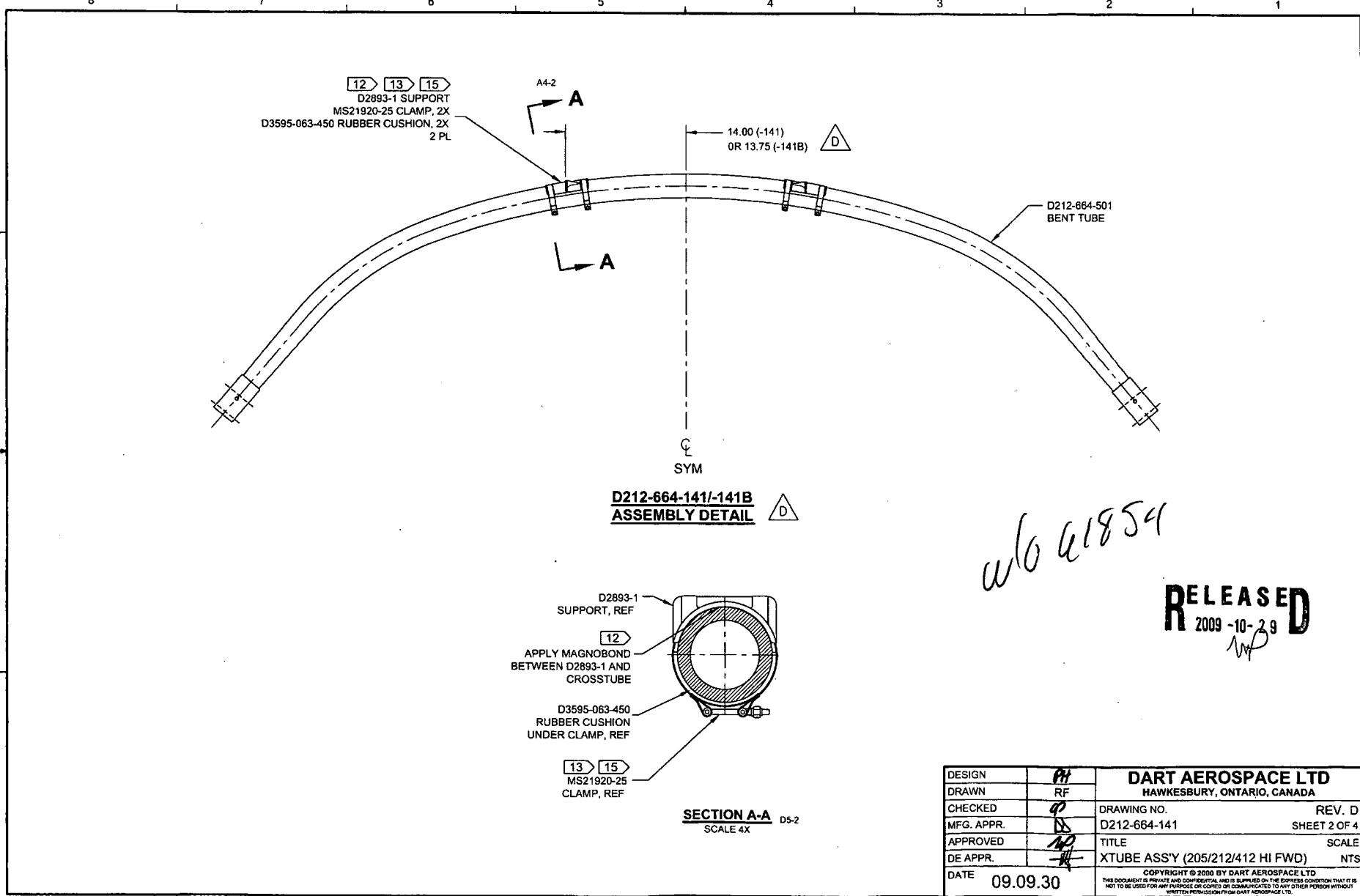
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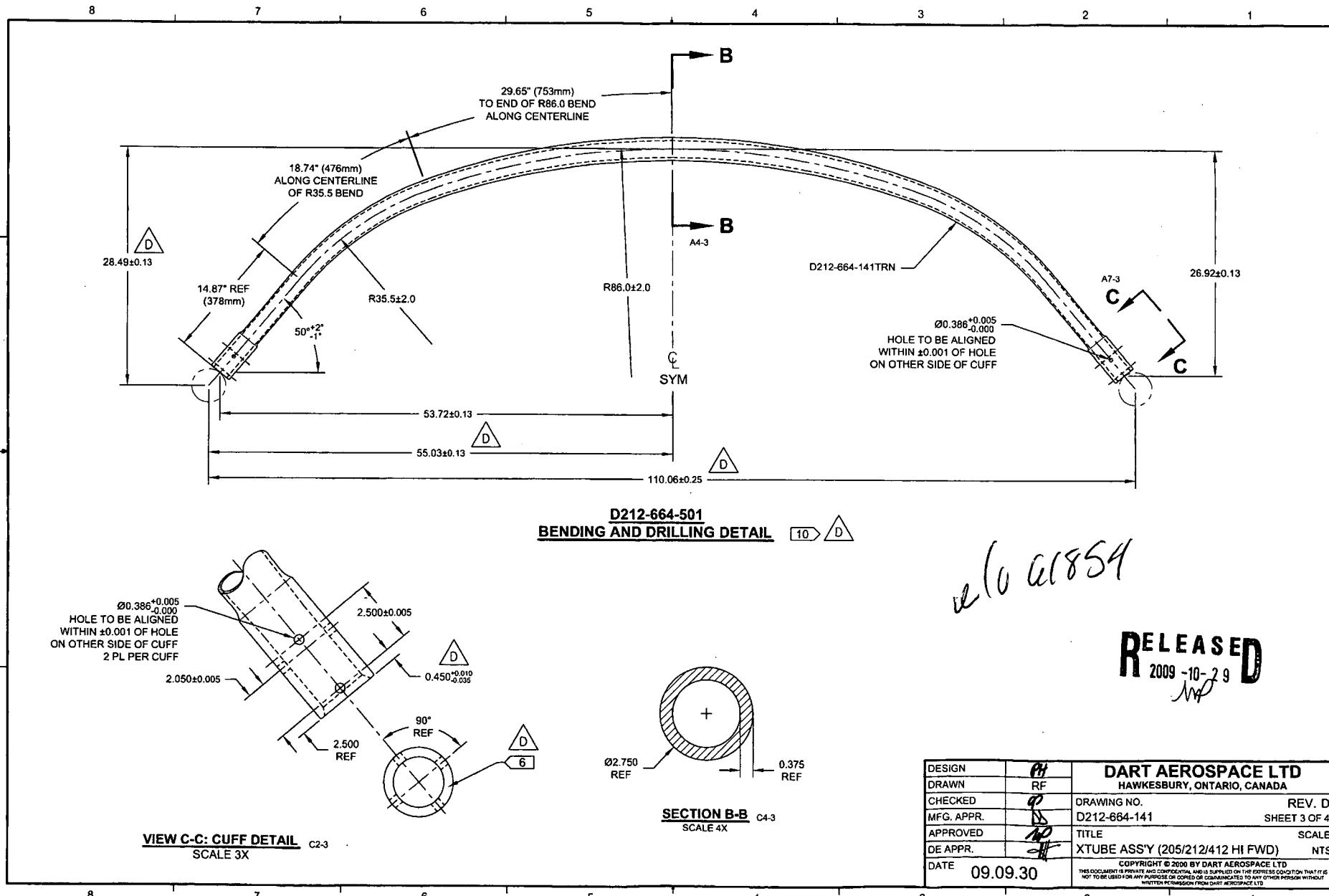
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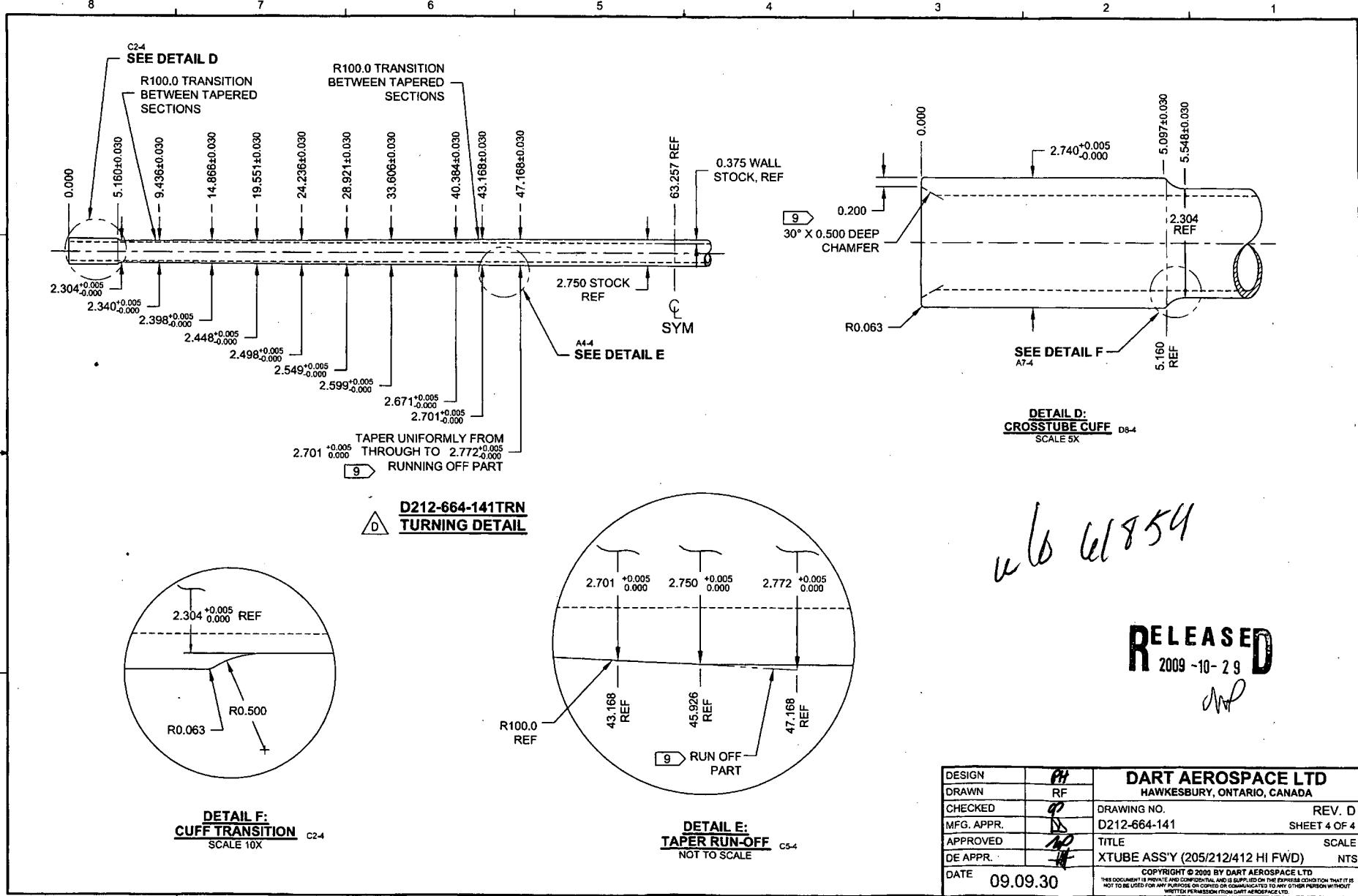
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